

Applications

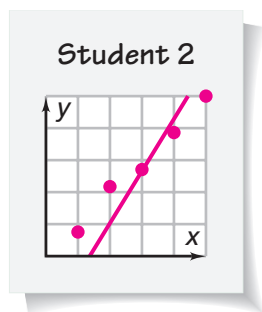
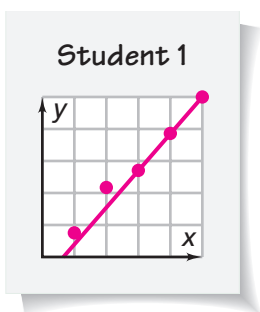
1. Below are some results from the bridge-thickness experiment.

Bridge-Thickness Experiment

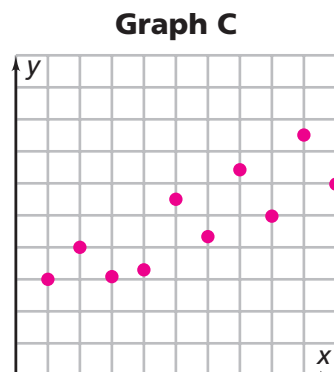
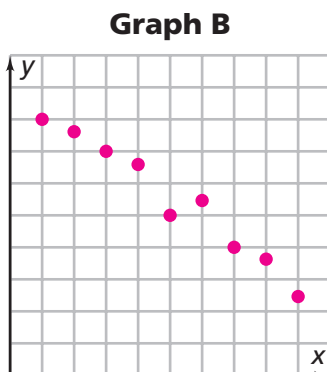
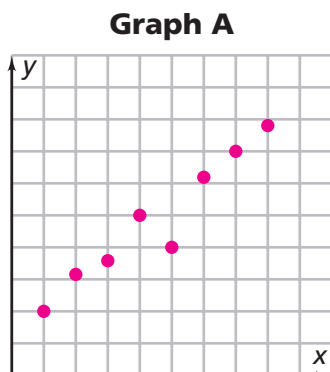
Thickness (layers)	2	4	6	8
Breaking Weight (pennies)	15	30	50	65

- Plot the (*thickness*, *breaking weight*) data. Draw a line that models the pattern in the data.
- Find an equation for the line you drew.
- Use your equation to predict the breaking weights of paper bridges 3, 5, and 7 layers thick.

2. Which line do you think is a better model for the data? Explain.



3. Copy each graph onto grid paper. Draw a line that fits each set of data as closely as possible. Describe the strategies you used.



4. This table gives the average weights of purebred Chihuahuas from birth to 16 weeks.

Average Weights for Chihuahuas

Age (wk)	0	2	4	6	8	10	12	14	16
Weight (oz)	4	9	13	17.5	21.5	25	30	34	39

SOURCE: *The Complete Chihuahua Encyclopedia*



- Graph the (*age, weight*) data. Draw a line that models the data pattern.
 - Write an equation of the form $y = mx + b$ for your line. Explain what the values of m and b tell you about this situation.
 - Use your equation to predict the average weight of Chihuahuas for odd-numbered ages from 1 to 15 weeks.
 - What average weight does your linear model predict for a Chihuahua that is 144 weeks old? Explain why this prediction is unlikely to be accurate.
5. U-Wash-It Car Wash did market research to determine how much to charge for a car wash. The company makes this table based on its findings.

U-Wash-It Projections

Price per Wash	\$0	\$5	\$10	\$15	\$20
Customers Expected per Day	100	80	65	45	20

- Graph the (*price, expected customers*) data. Draw a line that models the data pattern.
- Write an equation in the form $y = mx + b$ for your graph. Explain what the values of m and b tell you about this situation.
- Use your equation to estimate the number of customers expected for prices of \$2.50, \$7.50, and \$12.50.

Homework
Help  **Online**
PHSchool.com

For: Help with Exercise 5
Web Code: ape-1205